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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/350,152 07/09/99 GARRAIT

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EXAMINER

HM22/1005

FINNEGAN HENDERSON FARABOW  
GARRETT & DUNNER LLP  
1300 I STREET N W  
WASHINGTON DC 20005-3315

CALVE, J

ART UNIT

PAPER NUMBER

1623

DATE MAILED:

10/05/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/350,152

Applicant(s)

GARRAIT ET AL.

Examiner

John N. Calve

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 4, 13, 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The first step of claim 1 requires a certain ratio of water to nitrile. Claims 13 and 14 require evaporation of water during the first step. Since the evaporation has a direct effect on the ratio, it is not known whether the ratio limits the amount of water before or after evaporation

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74

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(Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 3 recites the broad recitation less than 5% by weight of 2-hydroxy-4-methylthiobutyric acid (HMTBA), and the claim also recites preferably less than 2% by weight which is the narrower statement of the range/limitation. Similarly, claim 4 recites the broad recitation contains more than 95% by weight of HMTBA, and the claim also recites preferably more than 98% by weight which is the narrower statement of the range/limitation.

4. Claim 12 reads "Process according to claim 1 or 5, characterized in that in the first step, a concentrated solution of 2-hydroxy-4-methylthiobutyronitrile (HMTBN) is used." This claim is vague and indefinite, because it uses the words "concentrated solution" without giving the concentration range the claim is referring to. The first step of claim 1 must establish the formation of the amide. Without it, the two steps are unconnected elements.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (U.S. Patent 5,998,664) or Ruest et al. (U.S. Patent 4, 524, 077) in combination with Suchsland (U.S. Patent 5,847,207). Hsu et al. teach a continuous 2-step hydrolysis process to prepare HMTBA from the nitrile, using sulfuric acid. Reust et al. teach a 2-step process, using sulfuric acid followed by an extraction using an organic solvent followed by steam distillation to yield HMTBA. Hsu et al. teach the ratio between the molar quantity of sulfuric acid to 2-hydroxy-4-methylthiobutyronitrile (HMTBN) is .6 to 1.5, column 7, line 38-40. The instant application claims the ratio between the molar quantity of sulfuric acid to HMTBN is .7 to .85. Hsu et al. teach the first step of the

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reaction, going from the nitrile to the amide, to be carried out at 40°-70° C and the second step of the reaction, going from the amide to the butyric acid, to be carried out at 90°-130° C, column 8, lines 7-9. Reust et al. teach the first step of the reaction to be carried out at 25° - 65° and the second step of the reaction to be carried out at 70°-120°. The instant application claims the first step of the reaction to be carried out at 0°-50° C and the second step of the reaction to be carried out at a temperature of 90°-130° C. Hsu et al. teach the pressure of the first and second reaction step is 1-2 bar, column 8, line 10. The instant application claims the first reaction step is carried out at .1-3 bar and the second step of the reaction to be carried out at .5 – 5 bar. However, Hsu however, doesn't mention the quantity of water used in the second step.

Suchsland et al. discloses a continuous preparation of HMTBA by hydrolysis of the corresponding nitrile with sulfuric acid to form the amide, and followed by the addition of water to produce the acid. Suchsland et al. teach the quantity of water at the second step of the reaction is 35% weight relative to the whole reaction medium, column 5, lines 61-62. The instant application claims the minimum amount of water is 28% by weight. Suchsland et al. also teach that the aqueous solution of nitrile is concentrated by evaporation, column 5, lines 20-22 not unlike the instant application. Hsu et al. unlike applicant does not disclose that the water evaporated from the first step is recycled to the second step. If it is obvious to remove the water from step 1 and there is a need for water in step 2,, then the routineer would have used the evaporated water for economic or environmental reasons.

A person of ordinary skill in the art at the time the invention was made would have been motivated to combine Hsu et al. and Suchsland et al for the production of HMTBA. Hsu et al. provides for the high conversion rate of HMTBN to HMTBA. However, Hsu et al. doesn't address the problems associated with residues and waste products. Suchsland et al. however, improves the problems associated with residues and waste products by addition of organic solvents to the suspension of the methyl hydroxy methylthiobutyric acid .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Calve. The examiner can normally be reached on Monday-Friday between the hours of 9:30 a.m. and 6:00 p.m at (703)-605-1201.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Geist, SPE of Art Unit 1623, may be reached at (703) 308-1701. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

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GARY GEIST  
SUPERVISORY PATENT EXAMINER  
TECH CENTER 1600